

SEQUENCE LISTING

<110> Fishman, Jay A.

<120> MOLECULAR SEQUENCE OF SWINE RETROVIRUS
AND METHODS OF USE

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tgccaaaccc atccctgcgg 20

<210> 40
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 40
gttcacatgg acccgacatgc cc 22

<210> 41

<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Primer	
<400> 41	
gggcagtcgg guccaggtga gc	22
<210> 42	
<211> 24	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Primer	
<400> 42	
gtttacggga cgggcaggcgta tggc	24
<210> 43	
<211> 24	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Primer	
<400> 43	
gcacatcgctg ccacgtcccgta aacac	24
<210> 44	
<211> 26	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Primer	
<400> 44	
tggctggggc ggcgggtggta gacgggg	26
<210> 45	
<211> 26	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Primer	
<400> 45	
cccggtccacc accggccggccc cagccca	26
<210> 46	
<211> 24	
<212> DNA	

<213> Artificial Sequence		
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<223> Primer		
<400> 46		
gccccaaagcc ccagaaccca gacg		24
<210> 47		
<211> 24		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 47		
cgtctgggtt ctggggattt gggc		24
<210> 48		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 48		
gatgaacagg cagcacatcg		20
<210> 49		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 49		
cgtttacaga caagctgtga		20
<210> 50		
<211> 19		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 50		
agsacaaaagg ctgggaagc		19
<210> 51		
<211> 20		
<212> DNA		
<213> Artificial Sequence		

<220>		
<223> Primer		
<400> 51		
ataggagaca gcctgaactc		20
<210> 52		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 52		
ggaccattgt ctgaccctat		20
<210> 53		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 53		
gtcaaacacctt ataccagatc		20
<210> 54		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 54		
catcttgaggt ataggaggtc		20
<210> 55		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 55		
gcagggtgttagt gaacaggaaac		20
<210> 56		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		

<400> 56		
acctgttgaa ccatccctca		20
<210> 57		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 57		
cgaatggaga gatccaggta		20
<210> 58		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 58		
cctgcatcac ttctcttacc		20
<210> 59		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 59		
ttggcttgctt gtggaaatacg		20
<210> 60		
<211> 21		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 60		
caagagaaga agtggggaat g		21
<210> 61		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 61		

cacagtcgtt	caccatcgat	20
<210>	62	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	62	
gggagacaga	agaagaasgg	20
<210>	63	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	63	
cgatagtcat	tagtccagg	20
<210>	64	
<211>	21	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	64	
tgcgtggtttg	catcaagacc	21
<210>	65	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	65	
gtcgcaasgg	cataccttgt	20
<210>	66	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	66	
acagaggcttc	tgctasggaa	20

<210> 67		
<211> 19		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 67		
gcagctgttg acaatcato		19
<210> 68		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 68		
tatgaggaga gggcttgact		20
<210> 69		
<211> 19		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 69		
agcagacgtg ctagggagg		19
<210> 70		
<211> 19		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 70		
ccctctttgtt gttttgtttc		19
<210> 71		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<400> 71		
cagacactca gaacagagac		20
<210> 72		
<211> 20		

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 72
 acatcggtcta acccacccatag 20

<210> 73
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 73
 ctcgtttctg gtcataacctg a 21

<210> 74
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 74
 gagttacatct ctctaggca 19

<210> 75
 <211> 524
 <212> PRT
 <213> Porcine endogenous retrovirus

 <400> 75
 Met Gly Gln Thr Val Thr Thr Pro Leu Ser Leu Thr Leu Asp His Trp
 1 5 10 15
 Thr Glu Val Arg Ser Arg Ala His Asn Leu Ser Val Gln Val Lys Lys
 20 25 30
 Gly Pro Trp Gln Thr Phe Cys Ala Ser Glu Trp Pro Thr Phe Asp Val
 35 40 45
 Gly Trp Pro Ser Glu Gly Thr Phe Asn Ser Glu Ile Ile Leu Ala Val
 50 55 60
 Lys Ala Ile Ile Phe Gln Thr Gly Pro Gly Ser His Pro Asp Gln Glu
 65 70 75 80
 Pro Tyr Ile Leu Thr Trp Gln Asp Leu Ala Glu Asp Pro Pro Pro Trp
 85 90 95
 Val Lys Pro Trp Leu Asn Lys Pro Arg Lys Pro Gly Pro Arg Ile Leu
 100 105 110
 Ala Leu Gly Glu Lys Asn Lys His Ser Ala Glu Lys Val Glu Pro Ser
 115 120 125
 Pro Arg Ile Tyr Pro Glu Ile Glu Glu Pro Pro Thr Trp Pro Glu Pro
 130 135 140
 Gln Pro Val Pro Pro Pro Tyr Pro Ala Gln Gly Ala Val Arg Gly
 145 150 155 160

Pro Ser Ala Pro Pro Gly Ala Pro Val Val Glu Gly Pro Ala Ala Gly
 165 170 175
 Thr Arg Ser Arg Arg Gly Ala Thr Pro Glu Arg Thr Asp Glu Ile Ala
 180 185 190
 Ile Leu Pro Leu Arg Thr Tyr Gly Pro Pro Met Pro Gly Gly Gln Leu
 195 200 205
 Gln Pro Leu Gln Tyr Trp Pro Phe Ser Ser Ala Asp Leu Tyr Asn Trp
 210 215 220
 Lys Thr Asn His Pro Pro Phe Ser Gln Asp Pro Gln Arg Leu Thr Gly
 225 230 235 240
 Leu Val Glu Ser Leu Met Phe Ser His Gln Pro Thr Trp Asp Asp Cys
 245 250 255
 Gln Gln Leu Leu Gln Thr Leu Phe Thr Thr Glu Glu Arg Glu Arg Ile
 260 265 270
 Leu Leu Glu Ala Lys Lys Asn Val Pro Gly Ala Asp Gly Arg Pro Thr
 275 280 285
 Gln Leu Gln Asn Gln Ile Asp Met Gly Phe Pro Leu Thr Arg Pro Gly
 290 295 300
 Trp Asp Tyr Asn Thr Ala Glu Gly Arg Glu Ser Leu Lys Ile Tyr Arg
 305 310 315 320
 Gln Ala Leu Val Ala Gly Leu Arg Gly Ala Ser Arg Arg Pro Thr Asn
 325 330 335
 Leu Ala Lys Val Arg Glu Val Met Gln Gly Pro Asn Glu Pro Pro Ser
 340 345 350
 Val Phe Leu Glu Arg Leu Met Glu Ala Phe Arg Arg Phe Thr Pro Phe
 355 360 365
 Asp Pro Thr Ser Glu Ala Gln Lys Ala Ser Val Ala Leu Ala Phe Ile
 370 375 380
 Gly Gln Ser Ala Leu Asp Ile Arg Lys Lys Leu Gln Arg Leu Glu Gly
 385 390 395 400
 Leu Gln Glu Ala Glu Leu Arg Asp Leu Val Arg Glu Ala Glu Lys Val
 405 410 415
 Tyr Tyr Arg Arg Glu Thr Glu Glu Lys Glu Gln Arg Lys Glu Lys
 420 425 430
 Glu Arg Glu Glu Arg Glu Arg Arg Asp Arg Arg Gln Glu Lys Asn
 435 440 445
 Leu Thr Lys Ile Leu Ala Ala Val Val Glu Gly Lys Ser Ser Arg Glu
 450 455 460
 Arg Glu Arg Asp Phe Arg Lys Ile Arg Ser Gly Pro Arg Gln Ser Gly
 465 470 475 480
 Asn Leu Gly Asn Arg Thr Pro Leu Asp Lys Asp Gln Cys Ala Tyr Cys
 485 490 495
 Lys Glu Lys Gly His Trp Ala Arg Asn Cys Pro Lys Lys Gly Asn Lys
 500 505 510
 Gly Pro Lys Val Leu Ala Leu Glu Glu Asp Lys Asp
 515 520

<210> 76
 <211> 401
 <212> PRT
 <213> Porcine endogenous retrovirus

<400> 76
 Met Gly Ala Thr Gly Gln Arg Gln Tyr Pro Trp Thr Thr Arg Arg Thr
 1 5 10 15
 Val Asp Leu Gly Val Gly Arg Val Thr His Ser Phe Leu Val Ile Pro

20	25	30	
Glu Cys Pro Val Pro Leu Leu Gly Arg Asp Leu Leu Thr Lys Met Gly			
35	40	45	
Ala Gln Ile Ser Phe Glu Gln Gly Arg Pro Glu Val Ser Val Asn Asn			
50	55	60	
Lys Pro Ile Thr Val Leu Thr Leu Gln Leu Asp Asp Glu Tyr Arg Leu			
65	70	75	80
Tyr Ser Pro Gln Val Ilys Pro Asp Gln Asp Ile Gln Ser Trp Leu Glu			
85	90	95	
Gln Phe Pro Gln Ala Trp Ala Glu Thr Ala Gly Met Gly Leu Ala Lys			
100	105	110	
Gln Val Pro Pro Gln Val Ile Gln Leu Lys Ala Ser Ala Thr Pro Val			
115	120	125	
Ser Val Arg Gln Tyr Pro Leu Ser Arg Glu Ala Arg Glu Gly Ile Trp			
130	135	140	
Pro His Val Gln Arg Leu Ile Gln Gln Gly Ile Leu Val Pro Val Gln			
145	150	155	160
Ser Pro Trp Asn Thr Pro Leu Leu Pro Val Arg Lys Pro Gly Thr Asn			
165	170	175	
Asp Tyr Arg Pro Val Gln Asp Leu Arg Glu Val Asn Lys Arg Val Gln			
180	185	190	
Asp Ile His Pro Thr Val Pro Asn Pro Tyr Asn Leu Leu Ser Ala Leu			
195	200	205	
Pro Pro Gln Arg Asn Trp Tyr Thr Val Leu Asp Leu Lys Asp Ala Phe			
210	215	220	
Phe Cys Leu Arg Leu His Pro Thr Ser Gln Pro Leu Phe Thr Phe Glu			
225	230	235	240
Trp Arg Asp Pro Gly Thr Gly Arg Thr Gly Gln Leu Thr Trp Thr Arg			
245	250	255	
Leu Pro Gln Gly Phe Lys Asn Ser Pro Thr Ile Phe Asp Glu Ala Leu			
260	265	270	
His Arg Asp Leu Ala Asn Phe Arg Ile Gln His Pro Gln Val Thr Leu			
275	280	285	
Leu Gln Tyr Val Asp Asp Leu Leu Leu Ala Gly Ala Thr Lys Gln Asp			
290	295	300	
Cys Leu Glu Gly Thr Lys Ala Leu Leu Glu Leu Ser Asp Leu Gly			
305	310	315	320
Tyr Arg Ala Ser Ala Lys Lys Ala Gln Ile Cys Arg Arg Glu Val Thr			
325	330	335	
Tyr Leu Gly Tyr Ser Leu Arg Gly Gln Arg Trp Leu Thr Glu Ala			
340	345	350	
Arg Lys Lys Thr Val Val Gln Ile Pro Ala Pro Thr Thr Ala Lys Gln			
355	360	365	
Val Arg Glu Phe Leu Gly Thr Ala Gly Phe Cys Arg Leu Trp Ile Pro			
370	375	380	
Gly Phe Ala Thr Leu Ala Ala Pro Leu Tyr Pro Leu Thr Lys Glu Lys			
385	390	395	400
Gly			

<210> 77

<211> 271

<212> PRT

<213> Porcine endogenous retrovirus

<400> 77

Lys Arg Gly Leu Leu Thr Ser Ala Gly Arg Glu Ile Lys Asn Lys Gln
 1 5 10 15
 Glu Ile Leu Ser Leu Leu Glu Ala Leu His Leu Pro Lys Arg Leu Ala
 20 25 30
 Ile Ile His Cys Pro Gly His Gln Lys Ala Lys Asp Leu Ile Ser Arg
 35 40 45
 Gly Asn Gln Met Ala Asp Arg Val Ala Lys Gln Ala Ala Gln Ala Val
 50 55 60
 Asn Leu Leu Pro Ile Ile Glu Thr Pro Lys Ala Pro Glu Pro Arg Arg
 65 70 75 80
 Gln Tyr Thr Leu Glu Asp Trp Gln Glu Ile Lys Lys Ile Asp Gln Phe
 85 90 95
 Ser Glu Thr Pro Glu Gly Thr Cys Tyr Thr Ser Tyr Gly Lys Glu Ile
 100 105 110
 Leu Pro His Lys Glu Gly Leu Glu Tyr Val Gln Gln Ile His Arg Leu
 115 120 125
 Thr His Leu Gly Thr Lys His Leu Gln Gln Leu Val Arg Thr Ser Pro
 130 135 140
 Tyr His Val Leu Arg Leu Pro Gly Val Ala Asp Ser Val Val Lys His
 145 150 155 160
 Cys Val Pro Cys Gln Leu Val Asn Ala Asn Pro Ser Arg Ile Pro Pro
 165 170 175
 Gly Lys Arg Leu Arg Gly Ser His Pro Gly Ala His Trp Glu Val Asp
 180 185 190
 Phe Thr Glu Val Lys Pro Ala Lys Tyr Gly Asn Lys Tyr Leu Leu Val
 195 200 205
 Phe Val Asp Thr Phe Ser Gly Trp Val Glu Ala Tyr Pro Thr Lys Lys
 210 215 220
 Glu Thr Ser Thr Val Val Ala Lys Lys Ile Leu Glu Glu Ile Phe Pro
 225 230 235 240
 Arg Phe Gly Ile Pro Lys Val Ile Gly Ser Asp Asn Gly Pro Ala Phe
 245 250 255
 Val Ala Gln Val Ser Gln Gly Leu Ala Lys Ile Leu Gly Ile Asp
 260 265 270

<210> 78

<211> 139

<212> PRT

<213> Porcine endogenous retrovirus

<400> 78

Lys Leu His Cys Ala Tyr Arg Pro Gln Ser Ser Gly Gln Val Glu Arg
 1 5 10 15
 Met Asn Arg Thr Ile Lys Glu Thr Leu Thr Lys Leu Thr Thr Glu Thr
 20 25 30
 Gly Ile Asn Asp Trp Met Ala Leu Leu Pro Phe Val Leu Phe Arg Val
 35 40 45
 Arg Asn Thr Pro Gly Gln Phe Gly Leu Thr Pro Tyr Lys Leu Leu Tyr
 50 55 60
 Gly Gly Pro Pro Pro Leu Ala Glu Ile Ala Phe Ala His Ser Ala Asp
 65 70 75 80
 Val Leu Leu Ser Gln Pro Leu Phe Ser Arg Leu Lys Ala Leu Glu Trp
 85 90 95
 Val Arg Gln Arg Ala Trp Lys Gln Leu Arg Glu Ala Tyr Ser Gly Gly
 100 105 110
 Asp Leu Gln Val Pro His Arg Phe Gln Val Gly Asp Ser Val Tyr Val

115	120	125
Arg Arg His Arg Ala Gly Asn Leu Glu Thr Arg		
130	135	
<210> 79		
<211> 657		
<212> PRT		
<213> Porcine endogenous retrovirus		
<400> 79		
Lys Gly Pro Tyr Leu Val Leu Leu Thr Thr Pro Thr Ala Val Lys Val		
1	5	10
Glu Gly Ile Pro Leu Ser Phe Ala Ser Ile Ala Trp Phe Leu Thr Leu		
20	25	30
Ser Ile Thr Pro Gln Val Asn Gly Lys Arg Leu Val Asp Ser Pro Asn		
35	40	45
Ser His Lys Pro Leu Ser Leu Thr Trp Leu Leu Thr Asp Ser Gly Thr		
50	55	60
Gly Ile Asn Ile Asn Ser Thr Gln Gly Glu Ala Pro Leu Gly Thr Trp		
65	70	75
Trp Pro Gln Leu Tyr Val Cys Leu Arg Ser Val Ile Pro Gly Leu Asn		
85	90	95
Asp Gln Ala Thr Pro Pro Asp Val Leu Arg Ala Tyr Gly Phe Tyr Val		
100	105	110
Cys Pro Gly Pro Pro Asn Asn Glu Glu Tyr Cys Gly Asn Pro Gln Asp		
115	120	125
Phe Phe Cys Lys Gln Trp Ser Cys Ile Thr Ser Asn Asp Gly Asn Trp		
130	135	140
Lys Trp Pro Val Ser Gln Gln Asp Arg Val Ser Tyr Ser Phe Val Asn		
145	150	155
Asn Pro Thr Ser Tyr Asn Gln Phe Asn Tyr Gly His Gly Arg Trp Lys		
165	170	175
Asp Trp Gln Gln Arg Val Gln Lys Asp Val Arg Asn Lys Gln Ile Ser		
180	185	190
Cys His Ser Leu Asp Leu Asp Tyr Leu Lys Ile Ser Phe Thr Glu Lys		
195	200	205
Gly Lys Gln Glu Asn Ile Gln Lys Trp Val Asn Gly Ile Ser Trp Gly		
210	215	220
Ile Val Tyr Tyr Gly Gly Ser Gly Arg Lys Gly Ser Val Leu Thr		
225	230	235
Ile Arg Leu Arg Ile Glu Thr Gln Met Glu Pro Pro Val Ala Ile Gly		
245	250	255
Pro Asn Lys Gly Leu Ala Glu Gln Gly Pro Pro Ile Gln Glu Gln Arg		
260	265	270
Pro Ser Pro Asn Pro Ser Asp Tyr Asn Thr Thr Ser Gly Ser Val Pro		
275	280	285
Thr Glu Pro Asn Ile Thr Ile Lys Thr Gly Ala Lys Leu Phe Ser Leu		
290	295	300
Ile Gln Gly Ala Phe Gln Ala Leu Asn Ser Thr Thr Pro Glu Ala Thr		
305	310	315
Ser Ser Cys Trp Leu Cys Leu Ala Ser Gly Pro Pro Tyr Tyr Glu Gly		
325	330	335
Met Ala Arg Gly Gly Lys Phe Asn Val Thr Lys Glu His Arg Asp Gln		
340	345	350
Cys Thr Trp Gly Ser Gln Asn Lys Leu Thr Leu Thr Glu Val Ser Gly		
355	360	365

Lys Gly Thr Cys Ile Gly Met Val Pro Pro Ser His Gln His Leu Cys
 370 375 380
 Asn His Thr Glu Ala Phe Asn Arg Thr Ser Glu Ser Gln Tyr Leu Val
 385 390 395 400
 Pro Gly Tyr Asp Arg Trp Trp Ala Cys Asn Thr Gly Leu Thr Pro Cys
 405 410 415
 Val Ser Thr Leu Val Phe Asn Gln Thr Lys Asp Phe Cys Val Met Val
 420 425 430
 Gln Ile Val Pro Arg Val Tyr Tyr Pro Glu Lys Ala Val Leu Asp
 435 440 445
 Glu Tyr Asp Tyr Arg Tyr Asn Arg Pro Lys Arg Glu Pro Ile Ser Leu
 450 455 460
 Thr Leu Ala Val Met Leu Gly Leu Gly Val Ala Ala Gly Val Gly Thr
 465 470 475 480
 Gly Thr Ala Ala Leu Ile Thr Gly Pro Gln Gln Leu Glu Lys Gly Leu
 485 490 495
 Ser Asn Leu His Arg Ile Val Thr Glu Asp Leu Gln Ala Leu Glu Lys
 500 505 510
 Ser Val Ser Asn Leu Glu Glu Ser Leu Thr Ser Leu Ser Glu Val Val
 515 520 525
 Leu Gln Asn Arg Arg Gly Ile Asp Leu Leu Phe Leu Lys Glu Gly
 530 535 540
 Leu Cys Val Ala Leu Lys Glu Glu Cys Cys Phe Tyr Val Asp His Ser
 545 550 555 560
 Gly Ala Ile Arg Asp Ser Met Ser Lys Leu Arg Glu Arg Leu Glu Arg
 565 570 575
 Arg Arg Arg Glu Arg Ala Asp Gln Gly Trp Phe Glu Gly Trp Phe
 580 585 590
 Asn Arg Ser Pro Trp Met Thr Thr Leu Leu Ser Ala Leu Thr Gly Pro
 595 600 605
 Leu Val Val Leu Leu Leu Leu Thr Val Gly Pro Cys Leu Ile Asn
 610 615 620
 Arg Phe Val Ala Phe Val Arg Glu Arg Val Ser Ala Val Gln Ile Met
 625 630 635 640
 Val Leu Arg Gln Gln Tyr Gln Gly Leu Leu Ser Gln Gly Glu Thr Asp
 645 650 655
 Leu

<210> 80
 <211> 524
 <212> PRT
 <213> Porcine endogenous retrovirus

<400> 80
 Met Gly Gln Thr Val Thr Thr Pro Leu Ser Leu Thr Leu Asp His Trp
 1 5 10 15
 Thr Glu Val Lys Ser Arg Ala His Asn Leu Ser Val Gln Val Lys Lys
 20 25 30
 Gly Pro Trp Gln Thr Phe Cys Val Ser Glu Trp Pro Thr Phe Asp Val
 35 40 45
 Gly Trp Pro Ser Glu Gly Thr Phe Asn Ser Gln Ile Leu Ala Val
 50 55 60
 Lys Ala Val Ile Phe Gln Thr Gly Pro Gly Ser His Pro Asp Gln Glu
 65 70 75 80
 Pro Tyr Ile Leu Thr Trp Gln Asp Leu Ala Glu Asp Pro Pro Trp

85	90	95	
Val Lys Pro Trp Leu Asn Lys Pro Arg Lys Pro Gly Pro Arg Ile Leu			
100	105	110	
Ala Leu Gly Glu Lys Asn Lys His Ser Ala Glu Lys Val Lys Pro Ser			
115	120	125	
Pro His Ile Tyr Pro Glu Ile Glu Glu Pro Pro Ala Trp Pro Glu Pro			
130	135	140	
Gln Ser Val Pro Pro Pro Tyr Leu Ala Gln Gly Ala Ala Arg Gly			
145	150	155	160
Pro Phe Ala Pro Pro Gly Ala Pro Ala Val Glu Gly Pro Ala Ala Gly			
165	170	175	
Thr Arg Ser Arg Arg Gly Ala Thr Pro Glu Arg Thr Asp Glu Ile Ala			
180	185	190	
Thr Leu Pro Leu Arg Thr Tyr Gly Pro Pro Thr Pro Gly Gly Gln Leu			
195	200	205	
Gln Pro Leu Gln Tyr Trp Pro Phe Ser Ser Ala Asp Leu Tyr Asn Trp			
210	215	220	
Lys Thr Asn His Pro Pro Phe Ser Glu Asp Pro Gln Arg Leu Thr Gly			
225	230	235	240
Leu Val Glu Ser Leu Met Phe Ser His Gln Pro Thr Trp Asp Asp Cys			
245	250	255	
Gln Gln Leu Leu Gln Thr Leu Phe Thr Thr Glu Glu Arg Glu Arg Ile			
260	265	270	
Leu Leu Glu Ala Arg Lys Asn Val Pro Gly Ala Asp Gly Arg Pro Thr			
275	280	285	
Arg Leu Gln Asn Glu Ile Asp Met Gly Phe Pro Leu Thr Arg Pro Gly			
290	295	300	
Trp Asp Tyr Asn Thr Ala Glu Gly Arg Glu Ser Leu Lys Ile Tyr Arg			
305	310	315	320
Gln Ala Leu Val Ala Gly Leu Arg Gly Ala Ser Arg Arg Pro Thr Asn			
325	330	335	
Leu Ala Lys Val Arg Glu Val Met Gln Gly Pro Asn Glu Pro Pro Ser			
340	345	350	
Val Phe Leu Glu Arg Leu Leu Glu Ala Phe Arg Arg Tyr Thr Pro Phe			
355	360	365	
Asp Pro Thr Ser Glu Ala Gln Lys Ala Ser Val Ala Leu Ala Phe Ile			
370	375	380	
Gly Gln Ser Ala Leu Asp Ile Arg Lys Lys Leu Gln Arg Leu Glu Gly			
385	390	395	400
Leu Gln Glu Ala Glu Leu Arg Asp Leu Val Lys Glu Ala Glu Lys Val			
405	410	415	
Tyr Tyr Lys Arg Glu Thr Glu Glu Arg Glu Gln Arg Lys Glu Arg			
420	425	430	
Glu Arg Glu Glu Arg Glu Arg Arg Asn Lys Arg Gln Glu Lys Asn			
435	440	445	
Leu Thr Lys Ile Leu Ala Ala Val Val Glu Gly Lys Ser Asn Thr Glu			
450	455	460	
Arg Glu Arg Asp Phe Arg Lys Ile Arg Ser Gly Pro Arg Gln Ser Gly			
465	470	475	480
Asn Leu Gly Asn Arg Thr Pro Leu Asp Lys Asp Gln Cys Ala Tyr Cys			
485	490	495	
Lys Glu Arg Gly His Trp Ala Arg Asn Cys Pro Lys Lys Gly Asn Lys			
500	505	510	
Gly Pro Arg Ile Leu Ala Leu Glu Asp Lys Asp			
515	520		

<210> 81
 <211> 1145
 <212> PBT
 <213> Porcine endogenous retrovirus

<400> 81
 Met Gly Ala Thr Gly Gln Gln Tyr Pro Trp Thr Thr Arg Arg Thr
 1 5 10 15
 Val Asp Leu Gly Val Gly Arg Val Thr His Ser Phe Leu Val Ile Pro
 20 25 30
 Glu Cys Pro Ala Pro Leu Leu Gly Arg Asp Leu Leu Thr Lys Met Gly
 35 40 45
 Ala Gln Ile Ser Phe Glu Gln Gly Lys Pro Glu Val Ser Ala Asn Asn
 50 55 60
 Lys Pro Ile Thr Val Leu Thr Leu Gln Leu Asp Asp Glu Tyr Arg Leu
 65 70 75 80
 Tyr Ser Pro Leu Val Lys Pro Asp Gln Asn Ile Gln Phe Trp Leu Glu
 85 90 95
 Gln Phe Pro Gln Ala Trp Ala Glu Thr Ala Gly Met Gly Leu Ala Lys
 100 105 110
 Gln Val Pro Pro Gln Val Ile Gln Leu Lys Ala Ser Ala Thr Pro Val
 115 120 125
 Ser Val Arg Gln Tyr Pro Leu Ser Lys Glu Ala Gln Glu Gly Ile Arg
 130 135 140
 Pro His Val Gln Arg Leu Ile Gln Gln Gly Ile Leu Val Pro Val Gln
 145 150 155 160
 Ser Pro Trp Asn Thr Pro Leu Leu Pro Val Arg Lys Pro Gly Thr Asn
 165 170 175
 Asp Tyr Arg Pro Val Gln Asp Leu Arg Glu Val Asn Lys Arg Val Gln
 180 185 190
 Asp Ile His Pro Thr Val Pro Asn Pro Tyr Asn Leu Leu Cys Ala Leu
 195 200 205
 Pro Pro Gln Arg Ser Trp Tyr Thr Val Leu Asp Leu Lys Asp Ala Phe
 210 215 220
 Phe Cys Leu Arg Leu His Pro Thr Ser Gln Pro Leu Phe Ala Phe Glu
 225 230 235 240
 Trp Arg Asp Pro Gly Thr Gly Arg Thr Gly Gln Leu Thr Trp Thr Arg
 245 250 255
 Leu Pro Gln Gly Phe Lys Asn Ser Pro Thr Ile Phe Asp Glu Ala Leu
 260 265 270
 His Arg Asp Leu Ala Asn Phe Arg Ile Gln His Pro Gln Val Thr Leu
 275 280 285
 Leu Gln Tyr Val Asp Asp Leu Leu Ala Gly Ala Thr Lys Gln Asp
 290 295 300
 Cys Leu Glu Gly Thr Lys Ala Leu Leu Leu Glu Leu Ser Asp Leu Gly
 305 310 315 320
 Tyr Arg Ala Ser Ala Lys Lys Ala Gln Ile Cys Arg Arg Glu Val Thr
 325 330 335
 Tyr Leu Gly Tyr Ser Leu Arg Asp Gly Gln Arg Trp Leu Thr Glu Ala
 340 345 350
 Arg Lys Lys Thr Val Val Gln Ile Pro Ala Pro Thr Thr Ala Lys Gln
 355 360 365
 Met Arg Glu Phe Leu Gly Thr Ala Gly Phe Cys Arg Leu Trp Ile Pro
 370 375 380
 Gly Phe Ala Thr Leu Ala Ala Pro Leu Tyr Pro Leu Thr Lys Glu Lys
 385 390 395 400
 Gly Glu Phe Ser Trp Ala Pro Glu His Gln Lys Ala Phe Asp Ala Ile

405	410	415
Lys Lys Ala Leu Leu Ser Ala Pro Ala Leu Ala Leu Pro Asp Val Thr		
420	425	430
Lys Pro Phe Thr Leu Tyr Val Asp Glu Arg Lys Gly Val Ala Arg Gly		
435	440	445
Val Leu Thr Gln Thr Leu Gly Pro Trp Arg Arg Pro Val Ala Tyr Leu		
450	455	460
Ser Lys Lys Leu Asp Pro Val Ala Ser Gly Trp Pro Ile Cys Leu Lys		
465	470	475
Ala Ile Ala Ala Val Ala Ile Leu Val Lys Asp Ala Asp Lys Leu Thr		
485	490	495
Leu Gly Gln Asn Ile Thr Val Ile Ala Pro His Ala Leu Gln Asn Ile		
500	505	510
Val Arg Gln Pro Pro Asp Arg Trp Met Thr Asn Ala Arg Met Thr His		
515	520	525
Tyr Gln Ser Leu Leu Leu Thr Glu Arg Val Thr Phe Ala Pro Pro Ala		
530	535	540
Ala Leu Asn Pro Ala Thr Leu Leu Pro Glu Glu Thr Asp Glu Pro Val		
545	550	555
Thr His Asp Cys His Gln Leu Leu Ile Glu Glu Thr Gly Val Arg Lys		
565	570	575
Asp Leu Thr Asp Ile Pro Leu Thr Gly Gln Val Leu Thr Trp Phe Thr		
580	585	590
Asp Gly Ser Ser Tyr Val Val Glu Gly Lys Arg Met Ala Gly Ala Ala		
595	600	605
Val Val Asp Gly Thr Arg Thr Ile Trp Ala Ser Ser Leu Pro Glu Gly		
610	615	620
Thr Ser Ala Gln Lys Ala Glu Leu Met Ala Leu Thr Gln Ala Leu Arg		
625	630	635
Leu Ala Glu Gly Lys Ser Ile Asn Ile Tyr Thr Asp Ser Arg Tyr Ala		
645	650	655
Phe Ala Thr Ala His Val His Gly Ala Ile Tyr Lys Gln Arg Gly Leu		
660	665	670
Leu Thr Ser Ala Gly Arg Glu Ile Lys Asn Lys Glu Glu Ile Leu Ser		
675	680	685
Leu Leu Glu Ala Val His Leu Pro Lys Arg Leu Ala Ile Ile His Cys		
690	695	700
Pro Gly His Gln Lys Ala Lys Asp Leu Ile Ser Arg Gly Asn Gln Met		
705	710	715
Ala Asp Arg Val Ala Lys Gln Ala Ala Gln Gly Val Asn Leu Leu Pro		
725	730	735
Ile Ile Glu Met Pro Lys Ala Pro Glu Pro Arg Arg Gln Tyr Thr Leu		
740	745	750
Glu Asp Trp Gln Glu Ile Lys Lys Ile Asp Gln Phe Ser Glu Thr Pro		
755	760	765
Glu Gly Thr Cys Tyr Thr Ser Asp Gly Lys Glu Ile Leu Pro His Lys		
770	775	780
Glu Gly Leu Glu Tyr Val Gln Gln Ile His Arg Leu Thr His Leu Gly		
785	790	795
Thr Lys His Leu Gln Gln Leu Val Arg Thr Ser Pro Tyr His Val Leu		
805	810	815
Arg Leu Pro Gly Val Ala Asp Ser Val Val Lys His Cys Val Pro Cys		
820	825	830
Gln Leu Val Asn Ala Asn Pro Ser Arg Met Pro Pro Gly Lys Arg Leu		
835	840	845
Arg Gly Ser His Pro Gly Ala His Trp Glu Val Asp Phe Thr Glu Val		
850	855	860

Lys Pro Ala Lys Tyr Gly Asn Lys Tyr Leu Leu Val Phe Val Asp Thr
 865 870 875 880
 Phe Ser Gly Trp Val Glu Ala Tyr Pro Thr Lys Lys Glu Thr Ser Thr
 885 890 895
 Val Val Ala Lys Lys Ile Leu Glu Glu Ile Phe Pro Arg Phe Gly Ile
 900 905 910
 Pro Lys Val Ile Gly Ser Asp Asn Gly Pro Ala Phe Val Ala Gln Val
 915 920 925
 Ser Gln Gly Leu Ala Lys Ile Leu Gly Ile Asp Trp Lys Leu His Cys
 930 935 940
 Ala Tyr Arg Pro Gln Ser Ser Gly Gln Val Glu Arg Met Asn Arg Thr
 945 950 955 960
 Ile Lys Glu Thr Leu Thr Lys Leu Thr Ala Glu Thr Gly Val Asn Asp
 965 970 975
 Trp Ile Ala Leu Leu Pro Phe Val Leu Phe Arg Val Arg Asn Thr Pro
 980 985 990
 Gly Gln Phe Gly Leu Thr Pro Tyr Glu Leu Leu Tyr Gly Gly Pro Pro
 995 1000 1005
 Pro Leu Val Glu Ile Ala Ser Val His Ser Ala Asp Val Leu Leu Ser
 1010 1015 1020
 Gln Pro Leu Phe Ser Arg Leu Lys Ala Leu Glu Trp Val Arg Gln Arg
 1035 1030 1035 1040
 Ala Trp Arg Gln Leu Arg Glu Ala Tyr Ser Gly Gly Asp Leu Gln
 1045 1050 1055
 Ile Pro His Arg Phe Gln Val Gly Asp Ser Val Tyr Val Arg Arg His
 1060 1065 1070
 Arg Ala Gly Asn Leu Glu Thr Arg Trp Lys Gly Pro Tyr Leu Val Leu
 1075 1080 1085
 Leu Thr Thr Pro Thr Ala Val Lys Val Glu Gly Ile Ser Thr Trp Ile
 1090 1095 1100
 His Ala Ser His Val Lys Pro Ala Pro Pro Asp Ser Gly Trp Lys
 1105 1110 1115 1120
 Ala Glu Lys Thr Glu Asn Pro Leu Lys Leu Arg Leu His Arg Val Val
 1125 1130 1135
 Pro Tyr Ser Val Asn Asn Leu Ser Asp
 1140 1145

<210> 82
 <211> 638
 <213> PRT
 <213> Porcine endogenous retrovirus

<400> 82
 Met His Pro Thr Leu Asn Arg Arg His Leu Pro Ile Arg Gly Gly Lys
 1 5 10 15
 Pro Lys Arg Leu Lys Ile Pro Leu Ser Phe Ala Ser Ile Ala Trp Phe
 20 25 30
 Leu Thr Leu Ser Ile Thr Ser Gln Thr Asn Gly Met Arg Ile Gly Asp
 35 40 45
 Ser Leu Asn Ser His Lys Pro Leu Ser Leu Thr Trp Leu Ile Thr Asp
 50 55 60
 Ser Gly Thr Gly Ile Asn Ile Asn Asn Thr Gln Gly Glu Ala Pro Leu
 65 70 75 80
 Gly Thr Trp Trp Pro Asp Leu Tyr Val Cys Leu Arg Ser Val Ile Pro
 85 90 95
 Ser Leu Thr Ser Pro Pro Asp Ile Leu His Ala His Gly Phe Tyr Val

100	105	110
Cys Pro Gly Pro Pro Asn Asn Gly Lys His Cys Gly Asn Pro Arg Asp		
115	120	125
Phe Phe Cys Lys Cln Trp Asn Cys Val Thr Ser Asn Asp Gly Tyr Trp		
130	135	140
Lys Trp Pro Thr Ser Cln Gln Asp Arg Val Ser Phe Ser Tyr Val Asn		
145	150	155
Thr Tyr Thr Ser Ser Gly Gln Phe Asn Tyr Leu Thr Trp Ile Arg Thr		
160	165	170
Gly Ser Pro Lys Cys Ser Pro Ser Asp Leu Asp Tyr Leu Lys Ile Ser		
180	185	190
Phe Thr Glu Lys Gly Lys Gln Glu Asn Ile Leu Lys Trp Val Asn Gly		
195	200	205
Met Ser Trp Gly Met Val Tyr Tyr Gly Ser Gly Lys Gln Pro Gly		
210	215	220
Ser Ile Leu Thr Ile Arg Leu Lys Ile Asn Gln Leu Glu Pro Pro Met		
225	230	235
Ala Ile Gly Pro Asn Thr Val Leu Thr Gly Gln Arg Pro Pro Thr Gln		
245	250	255
Gly Pro Gly Pro Ser Ser Asn Ile Thr Ser Gly Ser Asp Pro Thr Glu		
260	265	270
Ser Asn Ser Thr Thr Lys Met Gly Ala Lys Leu Phe Ser Leu Ile Gln		
275	280	285
Gly Ala Phe Gln Ala Leu Asn Ser Thr Thr Pro Glu Ala Thr Ser Ser		
290	295	300
Cys Trp Leu Cys Leu Ala Ser Gly Pro Pro Tyr Tyr Glu Gly Met Ala		
305	310	315
Arg Arg Gly Lys Phe Asn Val Thr Lys Glu His Arg Asp Gln Cys Thr		
325	330	335
Trp Gly Ser Gln Asn Lys Leu Thr Leu Thr Glu Val Ser Gly Lys Gly		
340	345	350
Thr Cys Ile Gly Lys Val Pro Pro Ser His Gln His Leu Cys Asn His		
355	360	365
Thr Glu Ala Phe Asn Gln Thr Ser Glu Ser Gln Tyr Leu Val Pro Gly		
370	375	380
Tyr Asp Arg Trp Trp Ala Cys Asn Thr Gly Leu Thr Pro Cys Val Ser		
385	390	395
Thr Leu Val Phe Asn Gln Thr Lys Asp Phe Cys Ile Met Val Gln Ile		
405	410	415
Val Pro Arg Val Tyr Tyr Pro Glu Lys Ala Ile Leu Asp Glu Tyr		
420	425	430
Asp Tyr Arg Asn His Arg Gln Lys Arg Glu Pro Ile Ser Leu Thr Leu		
435	440	445
Ala Val Met Leu Gly Leu Gly Val Ala Ala Gly Val Gly Thr Gly Thr		
450	455	460
Ala Ala Leu Val Thr Gly Pro Gln Gln Leu Glu Thr Gly Leu Ser Asn		
465	470	475
Leu His Arg Ile Val Thr Glu Asp Leu Gln Ala Leu Glu Lys Ser Val		
485	490	495
Ser Asn Leu Glu Glu Ser Leu Thr Ser Leu Ser Glu Val Val Leu Gln		
500	505	510
Asn Arg Arg Gly Leu Asp Leu Leu Phe Leu Lys Glu Gly Leu Cys		
515	520	525
Val Ala Leu Lys Glu Glu Cys Cys Phe Tyr Val Asp His Ser Gly Ala		
530	535	540
Ile Arg Asp Ser Met Asn Lys Leu Arg Glu Arg Leu Glu Lys Arg Arg		
545	550	555
		560

Arg Glu Lys Glu Thr Thr Glu Gly Trp Phe Glu Gly Trp Phe Asn Arg
565 570 575
Ser Leu Trp Leu Ala Thr Leu Leu Ser Ala Leu Thr Gly Pro Leu Ile
580 585 590
Val Leu Leu Leu Leu Thr Val Gly Pro Cys Ile Ile Asn Lys Leu
595 600 605
Ile Ala Phe Ile Arg Glu Arg Ile Ser Ala Val Gln Ile Met Val Leu
610 615 620
Arg Gln Gln Tyr Gln Ser Pro Ser Ser Arg Glu Ala Gly Arg
625 630 635